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ABSTRACT

Findings of a study that examined the relationship between classroom orientation and sociometric patterns within the classroom are presented in this paper. Methodology involved observation of 12 classrooms in Ontario and administration of two survey instruments to 20 fourth-year students. Classroom orientations were categorized as cooperative, competitive, or individualistic. Findings indicate that classroom orientation may be linked to school effectiveness. Although North American schools are often perceived as competitive, individualism appeared to be the norm for the sample schools. Despite recommendations made for cooperative learning, it was not common in these schools. An implication is that traditional evaluation techniques may not adequately measure alternative approaches to education, particularly in classes that are not teacher-led. In most of the sample classrooms, the teachers used a combination of all three orientations, which would yield varying results depending on the class observed. Three tables are included. (LMI)

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Culture Orientation and Sociometry of the Classroom: A Possible Relationship

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One aspect of the effective schools research which we seek to explore in the International School Effectiveness Research Program is the complex issue of competition, co-operation and individualistic accomplishment. This orientation is a reflection of the philosophical approach of the society in which the school is embedded and of the teachers who work in the school. Additionally it is a reflection of the values and culture of the school. In this paper we describe our initial attempts to examine the relationships between the cooperative/individualistic/orientation of the classroom to the sociometric patterns found therein. This connection will be used in further research to assess the importance of this orientation to student outcomes and school effectiveness.

Orientation and Learning

The competitive, cooperative or individualistic orientation of the classroom may or may not have effects on outcomes. Each orientation has its own proponents. Some teachers would rather use seatwork and isolation to maintain quiet and encourage individual learning. Some use games, both competitive and cooperative, to promote learning. The effects of these games are open to argument: competitive games may promote learning in some individuals while dampening the individual self esteem of others. This argument is countered by the assumption that the losers will try harder next time and work to improve their skills between contests.

What is evident is that more and more teachers in North America are turning toward cooperative learning techniques to enhance self-esteem, social support, and motivation and to encourage better attitudes toward schools (McCabe and Rhoades, 1989). The movement toward more cooperative learning is encouraged by a renewed emphasis on the

desirability of teamwork skills for employability and productivity in work environments.

As the distinctions between competition, cooperation and individualisn were explored in an earlier paper by Hajnal and Epp (1993), only a short summary is provided here.

Johnson and Johnson (1989) expanded on Deutsch's (1949) three basic "goal structures" to produce personal statements associated with them. Table 1 presents a summary of these approaches and provides a bases for their cooperative learning emphasis.

Table 1
Goal Structures and Their Associated Personal Statements

GOAL STRUCTURE DEUTSCH	DESCRIPTION JOHNSON AND JOHNSON
Individualistic	I'm alone in this. Each student is on his own and works alone to attain a specific goal
Competitive	It's me against you; someone wins and someone loses. Success is dependent upon others failing to reach the goal.
Cooperative	We're in this together; we can succeed if we do it together. In a cooperative group, students work together toward the completion of an assignemtn; ... Their success is dependent upon all group members doing an equal share of the work and helping other group members learn the material

A fourth category of altruism, describing the maximizing of other's outcomes regardless of one's own outcome, was added by Liebrand and McClintock (1988).

The categorization of group work or student activity into one of these dimensions is problematic because it is often the individual's intent or motivation in taking part in an activity that determines the categorization (Mead, 1967). Often individual work and even competitive work are preformed in a group which make the situation appear at first glance to be cooperative. Bennett, Rolheiser-Bennett and Stevahn (1991) emphasize that cooperative learning is always group work, but that group work may not be coperative.

True cooperative learning involves each student in specific activities which contribute to the group as a whole. It is intended to improve skills for all students, although all students will not be practicing the same skills at the same time. The basic elements of cooperative learning, according to Johnson & Johnson (1991), who have done much to study and popularize cooperative learning are these:

> **Positive interdependence** - students perceive that they need each other in order to complete the group's tasks. . . . Teachers may structure positive interdependence by establishing **mutual goals, . . .joint rewards, . . .shared resources, . . .**and **assigned roles.**
> **Face to face promotive interaction** - Students promote each other's learning by helping, sharing, and encouraging efforts to learn. Students explain, discuss, and teach what they know to class mates. . . .
> **Individual accountability** - Each student's performance is frequently assessed and the results are given to the group and the individual. Teachers may structure individual accountability by giving an individual test to each student or randomly selecting one group member to give the answer.
> **Interpersonal and small group skills** - Groups cannot function effectively if students do not have and use the needed social skills. Teacher teach these skills as purposefully as precisely as academic skills. Collaborative skills include leadership, decision-making, trust building, communication, and conflict management skills.

> **Group processing** - Groups need specific time to discuss how well they are achieving their goals and maintaining effective working relationships among members. . . (Johnson & Johnson, 1991, p. 2)

The practice of cooperative learning is always more than group work. It is the cooperative effort of the group, evaluated using group assessment of marks, with the expectation that students will perform various individual roles within the group structure. Groups are small (no more than six), and may be either homogeneous or heterogeneous, depending on the activity.

The orientation expected of the school is linked directly to the expectations of our society. The education of the young is closely linked to societal structures and expectations. Mead (1967) suggests that "The most determinative factor is the educational system and by examining this with care we might find forms of education which seemed necessary to the formation either of a competitive character structure or of a cooperative character structure" (p. 15). It is this link between the school and the social system which is the subject of this study. The orientation of the school both reflects and perpetuates the orientation of society.

In spite of its proponents' belief in the power and importance of cooperative learning, the literature on effective schools does not include cooperative learning as an essential ingredient for an effective school. It does not exclude it and in most instances the premises associated with effective schools could be applied to any of the three orientations. The orientations themselves are usually attached to the notion of school or classroom culture. Purkey and Smith (1983) find that "the school culture model ... assumes that changing schools requires changing people's behaviors and attitudes, as well as school organization and norms" (p. 441).

The examination of school culture has become an important aspect of

effective schools research. However, there is a tendency to view culture in an eclectic sense, labeling aspects of it without identifying what we have been calling orientation. This may reflect our present Janus like conflict between traditional competitive models and emerging cooperative expectations. Principals are becoming less authoritarian and more collegial; evaluation processes are flirting with reaching individual potential rather than norm referencing and cooperative learning models are replacing competition based practices in individual classrooms and schools. Educators have not thrown out the old expectations of discipline and achievement but these have been tempered by group processes and relationship considerations. Effective schools are caught in the crucible of this possible transformation:

> (T)he characteristics of schools where change has occurred are illuminating. Though specific tactics may vary, the general strategy is best characterized as one that promotes collaborative planning, collegial work, and an school atmosphere conducive to experimentation and evaluation. . . . Successful change efforts are more likely to be realized when the entire school culture is affected. . . . School culture can vary and still be academically effective, and a school's culture can lead to goals other than academic achievement. (Purkey & Smith, 1983, p. 442-444).

In identifying the culture of effective schools, Purkey & Smith (1983) suggested the "sustaining characteristics of a productive school culture". Davis & Thomas (1989) produced a similar list. The characteristics included on these lists are open to interpretation, depending on the orientation of the school in question. The effective schools characteristics can be found in schools with any of the specified orientations, however, they would be interpreted differently according to the school or teacher orientation. In Table 2 possible interpretations of the Purkey and Smith list of characteristics are provided.

Table 2
Possible Interpretations of Effective Shool Characteristics According to Orientation

CHARACTERISIC*	ORIENTATION		
	COMPETITIVE	COOPERATIVE	INDIVIDUALISTIC
Collaborative planning	team against team	team working toward common goal	personal best
Sense of community	league mentality	common good	safe personal environment
Clear goals/high expectations	win, be the best, achieve	provide for common accomplishments	set and reach personal goals
Order and discipline	rules and regulations	community expectations	individual responsibility and respect for others

*(Characteristics as noted by Purkey and Smith, 1983.)

Orientation and Outcomes

It has been argued by proponents of cooperative learning that this orientation in the classroom, while contributing to positive self-esteem and improving classroom relationships, will also improve academic performance. If these contentions are true, cooperative learning should be a powerful aspect of an effective school. The literature on effective schools has not, thus far, made that identification although the possibility of positive contributions from that area have not been denied and have often been speculated upon. We, therefore, sought ways by which to identify the

orientation of the schools being studied and to analyze, to some small degree, the sociometric aspects of that orientation. The orientation and sociometric results will then be assessed in the light of the academic outcomes which will be examined throughout the three year study.

Methodology

The first problem, then, was to identify the orientation of the classroom. Observers, who were in the classroom for about three weeks, were asked to identify activities used in the classroom and attitudes displayed by the teacher in terms of orientation. They made observations about activities and attitudes in general and also noted the specific orientation of the mathematics classes. This was done because in the larger study standardized mathematics scores will be used as both intake and outcome measures. The instrument used is included in Appendix A.

The second part of this pilot was intended to link the orientation of the classroom to social outcomes within it. It was assumed that students in classrooms with different orientations may have differing reactions to others in the classroom which would ultimately affect their relationships. Students were asked to name their friends in the class.

The two instruments were given to a group of 20 fourth year education students to experiment with during their three week observation period in Ontario schools during March of 1993. At this prelimiary stage of the project only descriptive statistics are provided for the classrooms. The data analysis was based on the choices made by students and included several averaging processes. The following calculations were performed for each of the classrooms:

1. Average number of choices per student,

2. Average number of reciprocated choices per student,

3. Average number of non-reciprocated choices per student,

4. Percent of students choosing the most chosen student in the room,

5. Percent of students who had no reciprocated choices,

6. Percent of students whose choices were reciprocated 75% of the time or more,

7. Percent of students who were not chosen by anyone,

8. Percent of girls who chose at least one boy,

9. Percent of boys who chose at least one girl, and

10. Percent of boys or girls who chose across gender lines.

The student observers were assigned to a variety of grade levels and subject combinations. The following observations are based on the first 12 observations to be returned. Discussion concerns two facets of the pilot (a) the appropriateness of the instrument and (b) the indications of the preliminary findings.

Findings

This section will report the preliminary findings associated with the study concerning the orientation and sociometry instruments.

The orientation instrument. Observers had difficulty determining and assigning a specific orientation in the classroom because activities were mixed and suggested a combination of several orientations. Most listed several observations suited to each orientation. There were differences between observations made on general classroom behavior and those made during mathematics classes which, if either set were taken as sole indicators would give a much different picture of classroom orientation.

The classrooms included in this preliminary report ranged from a Special Education Class to a Grade 9 (see Table 3). One was a single gender (female) class and another involved split grades. Seven of 12 classrooms were judged to be individualistic, while five were judged to be collaborative in nature. Some teachers were found to be using cooperative learning techniques. None of the classrooms were competitive. Apparently teachers in Ontario schools employ orientations that suit their needs.

Several observers suggested that teachers were using seating plans to isolate students to ensure individuality and class control: "The teacher was attempting to "go against the sociometry" of the classroom instead of trying to utilize it to promote constructive behavior and a positive learning environment. Discipline and class control were a problem for the teacher".

The sociometry instrument. Observers enjoyed the process involved in using the instrument because it enabled them to get to know the students' names, get to know the students themselves a little better and develop some understanding of the classroom dynamics. Many were ready with suggestions for teachers based on their observations. They considered the instrument successful from the point of view of providing information useful to a teacher for improving interaction or intervening in a classroom where social friction or discipline difficulties were evident.

The children had been asked to name their friends in the class. Some students named every other same gender student in the room, and others named almost all the students in the classroom. When we were developing the idea we contemplated limiting the number of students each could name to three or five, but then we feared losing valuable information. For example, would students in a cooperative classroom chose more students than in a competitive one? Would cooperation limit

Table 3
Orientation and Sociometry of 12 Classrooms

	Cheryl	Teresina	Derek	Stephen	Ted	Dawn	Julie
a) Average # Choices:	2.95	4.00	4.24	4.17	2.17	2.15	7.63
b) Avg Reciprocated:	1.6	2.00	3.21	1.73	1.13	1.56	5.17
c) Avg Unreciprocated:	1.35	2.00	1.03	2.43	1.03	0.59	2.46
d) % chosing most chosen:	30.00%	47.37%	27.27%	36.67%	20.00%	17.95%	58.33%
e) % no reciprocation:	25.00%	15.79%	9.09%	26.67%	33.33%	0.00%	8.33%
f) % recip.>.75	30.00%	21.05%	63.64%	20.00%	26.67%	53.85%	37.50%
g) % not chosen:	5.00%	0.00%	9.09%	3.33%	10.00%	0.00%	4.17%
h) % girl >=1 boy:	0.00%	33.33%	50.00%	53.85%	18.75%	30.00%	girls only
i) % boy >=1 girl:	20.00%	50.00%	26.67%	17.65%	7.14%	85.71%	girls only
j) % cross gender:	10.00%	42.11%	39.39%	33.33%	13.33%	62.50%	girls only
Grade	5	2	7/8	9	7	7	8
Style	Collab	Collab	Individ	Individ	Individ	Collab	Individ

	John	ChrisS	Christine	ChristyS	Sherry	Average
a) Average # Choices:	3.5	9.09	14.82	5.71	4.38	5.40
b) Avg Reciprocated:	2.25	5.26	12.55	4.09	1.58	3.51
c) Avg Unreciprocated:	1.25	3.83	2.27	1.62	2.79	1.89
d) % chosing most chosen:	62.50%	54.17%	81.82%	45.45%	45.83%	43.95%
e) % no reciprocation:	0.00%	21.74%	0.00%	13.64%	20.83%	14.54%
f) % recip.>.75	50.00%	21.74%	81.82%	54.55%	29.17%	40.83%
g) % not chosen:	0.00%	4.17%	0.00%	4.55%	8.33%	4.05%
h) % girl >=1 boy:	75.00%	60.00%	100.00%	77.78%	70.00%	47.39%
i) % boy >=1 girl:	50.00%	61.54%	84.62%	30.77%	35.71%	39.15%
j) % cross gender:	62.50%	60.87%	90.91%	50.00%	50.00%	42.91%
Grade	Special Ed	6	8	7	6	
Style	Individ	Individ	Collab	Collab	Individ	

friendships to those in the student's immediate group? This is a problem yet to be resolved by the research team.

The data analysis was based on the choices made by students and included several averaging processes. Most observers felt that their

information reflected the reality that they observed in the classroom. One observer felt that student perceptions of friendship varied greatly within the student group so the question itself was not valid. Another suggested that student feelings about friendship changed from day to day so the choices might be different and might give a different picture if given again the next day. A third suggested that the instrument did not take into consideration the history of the group and the other social factors which may be at work. This observer knew that the students he observed had been together, for the most part, for eight years. They were also from a small community where many of the out-of-school activities included this same group of students. A fourth factor complicating the reporting was the absence of students from a classroom during a particlar day. These absences distorted the friendship reciprocity. These factors would obviously affect the sociometry patterns more than the teacher's choice of orientation. Observers also suggested that the instrument would be interesting if used at the beginning of the year and again at the end of the year to note changes in groupings.

With only 12 classrooms reporting, there are only limited observations which can be made. The results are displayed in Table 3. The class averages of the number of students chosen by each individual student ranged from two to fifteen with a median of four. The most choices were in two Grade 8 classes where students averaged 8 and 15 choices each, and one Grade 6 class where students averaged 9 choices each. The least number of choices was two. The grand average was five choices per student.

The number of students who chose each other as "friends" ranged between an average of one and thirteen. The students with the highest

reciprocation were a Grade 8 class. The teacher in this class was a verbal proponent of cooperative learning techniques. The grand average for reciprocation was four.

The number of unreciprocated choices was very low across all the classrooms, ranging from an average of .6 to 13. This simply means that in all of these classrooms people chose people who chose them. There were no "complete misses" (instances where students chose a group of students completely different from those who chose them) in three classrooms. One class of Grade 8's managed to have reciprocation 80% of the time, but then, this was also the group which chose, on the average 15 students each.

Some students were chosen very often. In all classes the student who was chosen by the highest number of students was chosen by a larger percent of them. The range was 18% to 82% of the time and the median was 45%. In four classrooms there was one student who was not chosen at all.

In this small sample, the girls were somewhat more likely to select friends across gender lines than boys were. On average 47% of girls and 39% of boys selected across gender lines. At least one boy in all the classes chose at least one girl but in one classrooms no girls chose a boy. In one Grade 8 classroom all the girls chose a boy but only 85% of the boys chose a girl.

Connecting the results of the two instruments. Thus far, there is little to report in making connections between information collected using the two instruments. Of the two Grade 8 classrooms which displayed the highest number of selections, one classroom was collaborative and the second was individualistic. Of the two classrooms (both grade 7) which displayed the least number of sections, one was collaborative and the

second was individualistic. With 12 classrooms accounted for, it is too early to attempt to draw any conclusions concerning the association of these variables.

Conclusions

In this paper a distinction has been drawn between cooperative, competitive and individualistic orientations and the suggestion has been made that this orientation may be connected to school effectiveness. One aspect of that connection might be differences in the social climate within individual classrooms. Two instruments were put forward by which observers could attempt to assess the orientation of the classroom and describe the sociometry of the group of students. These two instruments were piloted in 20 Canadian schools, on which only 12 had reported at this writing.

Although North American schools are often thought of as competitive places, individualism appeared to be the norm for the schools included in this preliminary study. In spite of strong recommendations from those who have studied and used cooperative learning, it is not presently common in these schools. Instances of competition were also limited to a few mathematics drills and physical education exercises.

If we assume, using Mead's (1967) distinction, that competition requires competitors to be reaching for a mutually exclusive goal, then the use of norm referencing for reporting examination results is not a competitive practice. Students can vie for the same mark without denying it to someone else - unless students are graded using the learning curve. This distinction further negates the perception that North American schools use competitive practices to encourage learning.

The pilot study instruments examined here were useful for focusing

attention on the differences in orientation and to make researchers aware of the possibility of the importance of that orientation. Teachers using alternative approaches to education may be using these processes which will make it more difficult for researchers to evaluate strategies using traditional methods. If the class is not teacher led, which small group of children will be the focus for observation? In most of the classrooms observed for this study, the teachers used a combination of all three orientations which would yield varying results depending on the class being observed.

The sociometry instrument had two parts - an exercise for students, and a tally sheet. Initial responses from observers indicated that they felt that the sociometry exercise was interesting and enlightened them about the students being observed.

We sense the growing importance of orientation in a world which is questioning existing structures and seeking alternatives. Cooperative learning strategies are becoming more accepted; teachers are being trained to use these methods and their use will have an impact on practices in the schools. This, in turn, may bring important implications to future effective schools studies.

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APPENDIX A

Teacher Leadership affects on Classroom climate
(ISERP)

Juanita Epp (Canada) / Bjorn Nilsen and Marit Groterud (Norway)

This instrument is intended to assist observers in the classroom to recognize and categorize teacher behaviors which reflect a dominant leadership style, that is, competition-linked, individual-oriented or collaboration-related. There are two parts to the identification process - general classroom observations and specific observations from a mathematics lesson. In both cases, simply write down any activities, comments or procedures which might be associated with one of the three leadership styles. These may become evident during any part of your stay in the classroom but be sure to observe at least one mathematics lesson to become aware of the techniques actually in practice.

Near the end of your stay in the classroom, look over your lists of observations and decide which label is most applicable for this classroom. Provide a short justification for your choice using the data you have collected. The three categories are as follows:

Collaboration-related

- Groups of pupils solve tasks together
- There is positive mutual interdependence between individuals in a work-cooperative
- Individuals within the cooperative have a clearly articulated individual responsibility based on the division of labour within the group.
- Individual students take responsibility for leadership at different times.
- Students are encouraged to help others with their work.
- Individuals may be rewarded for helping others (marks, stickers, praise)
- Students are expected to go to others for help.
- The class (or small groups within it), is rewarded for the learning of individuals.
- Instruction is often based on cooperative group work.
- Students do projects together and may present the work to the larger group.

Individually oriented

- There is a low degree of interdependence between the pupils in the class.

- Even in work groups there is little concern with the work of others.

- There is a low degree of work-sharing between group or class members.

- Individuals may be doing different things or parallel work.

- There is little need for responsibility by group members for leadership functions.

- There is little interaction among students and therefore little need for social skills.

- There is little linkage between achievements by individual students.

- Students are encouraged to perform personal bests rather than to be better than others.

- Marking is individualistic, not norm referenced.

Competition -linked

- There are win- lose relationships between the students in the class and within working groups.

- There is a low degree of work-sharing. Tasks which demand cooperation are solved through parallel-work or coordination rather than interaction.

- Students may withdraw from responsibility or vie for leadership as leadership is a position rather than a flexible rotating duty.

- Social skills are channeled into leader / follower and winner / loser relationships.

- Instruction is often based on competitive games in which individuals or teams win while the rest lose.

- Grades and results are posted and / or ranked; Norm referencing is used instead of personal bests.

	General Observations	Mathematics Lesson Observations
Collaboration-related		
Individual-oriented		
Competition-linked		